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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/761,415	01/22/2004	Todd E. Bofinger	08935-301001 / M-5064	1429

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EXAMINER	
CHU, HELEN OK	
ART UNIT	PAPER NUMBER
1745	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/14/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/761,415	BOFINGER ET AL.	
	Examiner	Art Unit	
	Helen O. Chu	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 November 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicants' amendments are received on November 20, 2006. Claims 1, 6-9, 14-16 are amended. Claims 17-21 are cancelled.

2. The text of those sections of Title 35, U.S.C. code not included in this action can be found in the prior Office Action.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. The rejection under 35 U.S.C 112, first paragraph ,on claim 1 is withdrawn because Applicant has amended claim 1.

5. Claims 1-16 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for higher temperatures such as 60-100°C to replace 75% or more of the protons originally present, does not reasonably provide enablement for "between 40-120°C to replace at least 75% of the protons in the manganese dioxide with lithium ions. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims. Page 6, lines 10-14 of the specification states 60-100°C to replace 75% or more

of the protons originally present. The temperature limitations does not include a lower limit of 40-59°C

6. Claims 1-16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The recitation "replace 75% of protons" is not enabling for one of ordinary skill in the art because the specification does not disclose how many protons are contained in MnO_2.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. The rejection under 35 U.S.C 112, second paragraph, on claim 1 is withdrawn because Applicant has amended claim 1.

9. Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The recitation "substantially similar" is unclear to the Examiner. The recitation "substantially similar" is subjective and would not allow one of ordinary skill to form a sound basis of the claimed invention.

10. Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The recitation "replace 75% of

the protons" is unclear because the specification does not disclose what 75% encompasses because one or ordinary skill would not know how many protons are contained in MnO_2.

11. Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The recitation "substantially remove" is unclear to the Examiner. The recitation "substantially remove" is subjective and would not allow one of ordinary skill to form a sound basis of the claimed invention.

12. Claims depending from claims rejected under 35 U.S.C 112, first and second paragraph are also rejected for the same reason.

13. To the extent the claims are understood in view of 35 U.S.C 112 rejections above, note the following prior art rejections.

Claim Rejections - 35 USC § 102

14. The rejection under 35 U.S.C 102 (b) as anticipated by Itchev et al., on claims 1-21 because Applicants have amended and cancelled the claims.

Claim Rejections - 35 USC § 102/103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

16. Claims 1-16 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Itchev et al. (US Patent 6,190,800 B1).

In regard to claims 1, 6, 9, 14, Itchev et al. reference discloses a method of making a lithiated manganese dioxide for cathode of a primary battery that comprises contacting the lithium ion source. The Itchev et al. reference also discloses that a soaking process at a temperature of about 15-100°C at a raised pH to form a lithiated manganese dioxide (Claim 2, step e) and a water removal step in removing water to have similar x-ray diffraction patterns to prior to lithiation (Column 7, Line 66- Column 8, Line 2). Since the method steps and the components involved in the method as disclosed by Itchev et al. are the same in contrast to the Applicants' invention, it would also be inherent that 75% or more of the protons in MnO_2 are replaced at temperatures of 60-100°C in the method disclosed by Itchev et al.

In regard to claims 2, 3, 10 and 11, the Itchev et al. reference disclose a gamma-manganese dioxide (Column 1, Line 13) derived by persulfate (Column 1, Lines 58-59).

In regard to claims 4, 5, 12, and 13, the Itchev et al. reference discloses a lithium hydroxide that is an aqueous solution (Column 4, Lines 35-36).

In regard to claims 7, 8, 15 and 16, the Itchev et al. reference discloses a water removal step at a temperature of 350°C (Column 4, Line 20-21).

17. Claims 1-5, 7-13, 15 and 16 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Christian et al. (US Patent 6,403,257 B1).

In regard to claims 1, 3, 9,11, Christian et al. reference discloses a method for preparing a lithiated manganese dioxide having a stabilized gamma-MnO_2 type structure for cathode of a primary battery that comprises contacting the lithium ion source. The mechanical activation process carried at 40°C (Column 6, Lines 15-19) serves to promote partial ion-exchange of protons present in the manganese dioxide crystal lattice and on the surface of the manganese dioxide particles by lithium cations. (Abstract). The Christian et al. reference also discloses a water removal step at 350-420 °C and the heat treated lithiated manganese dioxide product can have 0.75-1.25 wt% lithium (Column 5, Lines 1-5). Since the weight percentage disclosed by Christian et al. is the same as that disclosed by the Applicant in Table 1, it would also be inherent that 75% or more of the protons in MnO_2 are replaced at temperatures of 60-100°C in the method disclosed by Christian et al.

In regard to claims 2 and10 , the Christian et al. reference disclose a gamma-manganese dioxide is derived by CMD (persulfate derived MnO_2; Column 4, Lines 26-28)

In regard to claims 4, 5, 12, and 13, the Christian et al. reference discloses a lithium hydroxide (Column 3, Lines 54-56) in an aqueous solution (Column 4, Lines 45-50).

In regard to claims 7, 8, 15 and 16, the Christian et al. reference discloses a water removal step at a temperature of 350°C (Column 4, Line 20-21).

Claim Rejections - 35 USC § 103

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

19. Claims 6 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Christian et al (US Patent 6,403,257 B1).

In regard to claims 6 and 14, the Christian et al. teaches a temperature of 40 degrees for mechanical activation but does not disclose a range of 60-100°C, however, the reference teaches external heating can be applied and since at 40°C the lithiated manganese dioxide product would have 0.75-1.25wt% of lithium, which is the same as Applicants' invention, it would have been obvious to one of ordinary skill in the art to achieve 75% **or more** proton replacement by increasing the temperatures.

Conclusion

20. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**.

See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helen O. Chu whose telephone number is (571) 272-5162. The examiner can normally be reached on Monday-Friday 8am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HOC

TRACY DOVE
PRIMARY EXAMINER